REQUEST FOR BID PROPOSAL

1.0 GENERAL INFORMATION

Project: **Containment Barrier Wall Design & Construction**
Midco I
National Priority List (NPL) Site
15th Avenue
Gary, Indiana

Consultant: ENVIRON International Corporation
740 Waukegan Road
Suite 401
Deerfield, IL 60015
Attention: Ron Hutchens
Telephone: (847) 444-9200
Fax: (847) 444-9420

You are invited to submit a **lump sum bid for the complete design and construction of a containment barrier wall** at the Midco I Site in Gary, Indiana. Sealed bids will be received by Ron Hutchens at the ENVIRON International Corporation ("ENVIRON") office named above until 5:00 pm CDT, August 15, 2003, at Deerfield, Illinois. Facsimile transmission of bids will not be accepted.

All questions about the meaning or intent of the Request for Bid shall be directed to Ron Hutchens in writing (Facsimile transmissions are acceptable). Questions will be accepted until 5:00 pm CDT on August 11, 2003. Interpretation or clarifications considered necessary by ENVIRON in response to such questions will be issued by Addenda (either mailed or faxed) to all parties receiving the Request for Bid. Only questions answered by

formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

The Contractor shall provide a lump sum bid for the project as described in this Request for Bid. Bids will be opened in private. ENVIRON reserves the right to waive any irregularities and to reject any or all bids. The Bidder shall submit with his bid a detailed schedule of values for work to be performed, listing work categories and quantities, major equipment, and values. This schedule will be used if the scope of work changes during design and/or construction.

A pre-bid meeting will be held at the site on August 7, 2003 at 10:00 am CDT. Attendance at the pre-bid meeting is **mandatory** to qualify for bid submission. A site location map and site map are provided in Appendix A.

1.1 Contractual Relationships

ENVIRON is under contract to the Midco Remedial Corporation ("MRC") to provide certain engineering and construction services necessary to perform the Work required pursuant to certain terms and conditions of a Consent Decree. ENVIRON is seeking to retain the services of a Subcontractor for design and construction of a containment barrier wall that minimizes the movement of ground water into the area to be dewatered and allow for the use of soil vapor extraction to treat the dewatered soil. An ENVIRON Subcontractor Agreement is attached in Appendix B.

1.2 Site Location and Surrounding Area

The Midco I Site is located at 7400 West Fifteenth Avenue in the southwest quarter of the northwest quarter of Section 11, Township 36 North, Range 9 West, in the southwestern portion of Gary, Indiana. The Midco I Site is in an area of mixed commercial and industrial use along with limited residential use and is within the Gary/Chicago Airport Development Zone. The nearest residences are situated about 1500 feet west of the Site. The property is bordered on the west and southwest by an Indiana Department of

Transportation (INDOT) facility; on the east by a privately owned parcel currently leased to Roadway Express; on the south by an auto parts distributor; and on the north by several small, privately owned undeveloped parcels of land. Wetlands and construction debris are present in the vacant parcels surrounding the site to the north and east.

1.3 Project Information

The general location of the containment barrier wall to be constructed is shown in Appendix C. **The attached does not indicate the exact alignment of the containment barrier wall that is part of this scope of work.** Subsurface cross sections depicting ENVIRON's estimate of the general soil conditions are included in Appendix C. Subsurface trash and debris will likely be encountered (e.g., cable, concrete, etc.) during the installation of the containment barrier wall. Provisions should be included in the lump sum bid to relocate the material to on-site location(s) designated by ENVIRON.

Types and levels of contamination expected to be encountered as part of the Work are described in Table 1.

Additional information is available at the offices of ENVIRON in both Chicago and Deerfield, Illinois. Bidder is advised that studies and data reported herein, by ENVIRON and others, were performed to determine the feasibility of different actions considered at the site. Bidder should not rely on interpretations or conclusions presented therein. Bidders should form their own conclusions as to the meaning of the raw data available. The Bidder is instructed to obtain or confirm the information needed to produce their Bid. Site access for new exploration/testing will be allowed (upon review/approval of proposed field programs) if deemed necessary to meet the project objectives.

Information contained in previous report(s) is available for information purposes only. Reliance on this information for the Bidder to provide Bids, design and services will not relieve the Bidder of obligations to execute the Work as specified at the proposed price.

Assumptions made by the Bidder are required to be stated in a separate section of the Bidder's proposal.

1.4 Containment Barrier Wall Objective

The objective of the containment barrier wall is to provide a continuous, vertical, hydraulic cutoff to isolate subsurface contamination, prevent migration of contamination, and allow dewatering to proceed with minimal influx of ground water from outside of the wall. The containment barrier wall must maintain a hydraulic conductivity no greater than 1 X 10^{-7} centimeter per second (cm/sec) (thickness to be determined by the Contractor). The design of the containment barrier wall should account for the fact that the wall will be exposed to known contaminants and concentrations for an extended period of time. Pump and treat operations inside the containment barrier wall will result in isolated or broad areas that are completely dewatered, resulting in a potential of 26 to 30 feet of hydraulic head (and thus gradient) on the containment barrier wall. In addition, the area within the wall will be treated with soil vapor extraction following dewatering. The wall must be continuous; of backfill of less than $1x10^{-7}$ cm/sec hydraulic conductivity; continuously keyed into the silty clay stratum; and of sufficient chemical compatibility, physical stability and long-term durability to perform in accordance with the objectives listed above. It shall be effective in minimizing seepage such that dewatering to a minimum depth of 12 feet below static water level can be maintained throughout the containment area using the existing extraction well network (i.e., EW-3 and EW-5). The infiltration through the containment barrier wall must be less than 3.8 gallons per minute.

2.0 AGREEMENT

An ENVIRON Subcontractor Agreement (Appendix B), including its conditions, is made part of this Request for Bid. The selected Contractor will be required to enter into the ENVIRON Subcontractor Agreement. Any exceptions to the Agreement must be noted in the Bidders bid.

3.0 CONTRACT SCHEDULE

If the bid is accepted, work will be completed within the time frame described below:

- Bids Due: August 15, 2003
- Contract Award: August 22, 2003
- Final Design Due: September 12, 2003
- Begin Construction: October 20, 2003
- Substantial Completion: December 12, 2003
- Submit Construction Documentation to ENVIRON: March 5, 2004

4.0 LIQUIDATED DAMAGES

The design and construction schedule is dependent on certain reviews and approvals by the MRC, Region V of the U.S. EPA, and the Indiana Department of Environmental Management (IDEM). The selected Bidder (Contractor) shall facilitate design approval in accordance with the stated schedule. With prior written consent from ENVIRON, the construction schedule can be delayed due to unanticipated delays in design reviews and approvals by others. However, construction must be substantially completed no later than the Contract Schedule as stated or the Contractor may be subject to liquidated damages of $1000.00 per day plus any stipulated penalties imposed on the MRC under the Consent Decree. For purposes of this project, substantial completion is defined as completion of the installation of the containment barrier wall. Contractor cleanup and demobilization can be completed after substantial completion.

5.0 BONDS, WARRANTY, AND INSURANCE

5.1 Bonds

1. Contractor shall furnish a Performance Bond and a Labor and Material Payment Bond in the amount of 100% of the Contract Sum prior to the time of signing the Contract. Performance and Payment Bonds shall be executed by a Surety company satisfactory to the Engineer (ENVIRON) and the Engineer's Client (MRC).
2. Such Bonds, among other conditions, shall include payment for all material used in Work and for all labor performed, whether by Subcontractor or otherwise. Cost of Performance Bond and Payment Bond shall be included in the Contract Sum.
3. Said bonds shall remain in full force and effect during the life of the Contract and during term of any warranty required by Specifications.
4. Contractor shall keep Bonding Company informed of changes in amount of the Contract Sum and shall furnish ENVIRON with copies of notices of such changes.
5. If laws of Federal, State or Local Governments or other authorities which have lawful jurisdiction contain provision beyond any requirement specified herein or require other bond forms, such laws shall govern and bonds shall be furnished in accordance therewith.

5.2 Warranty

The Bidder shall warranty the construction of the containment barrier wall for a period of five years, beginning at the completion of construction. If during the warranty period, the containment barrier wall fails to meet the performance criteria, Bidder shall replace or repair the containment barrier wall in accordance with the contract terms at no cost to the MRC or ENVIRON.

5.3 Insurance

Insurance requirements are stipulated in the Agreement (See Appendix B).

6.0 SUMMARY OF WORK

The Work included in this Request for Bid includes the following:

1. Complete the design and construction of the containment barrier wall that meets the objective stated in this Request for Bid. The containment barrier wall shall be designed to function for a minimum period of 30 years. The containment barrier wall will generally extend along the proposed final alignment as shown on the drawing attached in Appendix C. The final alignment should be close to the alignment defined on the attached drawing and approved by the Engineer and USEPA prior to construction. Work includes reviewing available chemical/geotechnical data and obtaining additional data if necessary for an approvable design.
2. Design shall include detailed plans and specifications for the installation of the containment barrier wall, including a health and safety plan, construction quality assurance (CQA) plan, a plan for handling buried debris and a contingency plan. The Bidder shall attend meetings with and make presentations to, as necessary, ENVIRON, the MRC, the USEPA, and IDEM to gain approval for the Bidder's containment barrier wall design.
3. If the bidder proposes a soil-bentonite containment barrier wall, the proposed mix design and results of testing shall be submitted with the final design. Bidder shall assure that samples used for design and testing are suitable for the intended purpose. The containment barrier wall will be installed through areas of known contamination. If a slurry wall is chosen, the CQA plan shall be based on Table 3-4 of "*Evaluation of Subsurface Engineered Barriers at Waste Sites*",[1] which is included in Appendix D.
4. Construction of the containment barrier wall shall include obtaining any and all necessary permits; furnishing all labor, equipment, and materials; and performing all operations required to construct the containment barrier wall. Construction work will also include quality control testing as specified in the approved CQA plan.

[1] USEPA, *Evaluation of Subsurface Engineered Barriers at Waste Sites*. EPA 542-R-98-005, August 1998.

Bidder must provide necessary stormwater runoff and erosion control features to protect adjacent surface waters.

5. Bidder shall properly dispose of any soil cuttings and/or excess containment barrier wall construction materials. Materials not passing the paint filter test shall be drummed in 55-gallon containers or otherwise contained in a manner acceptable to ENVIRON. The Bidders shall list the expected waste materials, quantity, if any, and proposed disposal location. ENVIRON and the MRC must approve of the selected waste disposal facilities prior to use.
6. Bidder shall leave the site free of debris at the end of construction and restore areas used during installation of the containment barrier wall to pre-construction conditions as specified by ENVIRON. The finish elevation of the containment barrier wall shall be the existing grade.
7. Bidder shall inform ENVIRON of all known utility and accessibility conflicts that the containment barrier wall will impact two (2) weeks prior to the start of construction. The Bidder is responsible for disconnecting and reconnecting all site utilities that will be affected by construction. The Bidder's design shall include sufficient narrative and drawing details to address reconnection of surface and subsurface utilities to be crossed by the containment barrier wall, including the extraction system piping from wells inside the contained area (extraction wells EW3 and EW5). The recommendation details shall allow for safe and permanent containment routings of surface and subsurface utilities without compromising the integrity of the containment barrier wall or the containment barrier wall warranty.
8. Bidder shall provide final wall details, including final, surveyed locations of the containment barrier wall.
9. Bidder shall specify maintenance requirements of the containment barrier wall to maintain the warranty and design basis. Such requirements may include load limitation on or near the containment barrier wall or ground surface, operating temperature limits, erosion control, or future utility penetrations.

7.0 PERFORMANCE

- The containment/barrier wall shall be continuously keyed into the clay confining layer at a depth of approximately 25 to 30 feet below the existing ground surface,[2] to an adequate depth, designed by the Bidder, to maintain a vertical hydraulic barrier. The containment barrier wall shall not fully penetrate the confining layer or cause the migration of ground water between any aquifers.
- The Bidder shall provide daily documentation for the containment barrier wall construction and perform construction quality control testing. However, as stated in the Warranty, the containment barrier wall must be at a minimum, able to demonstrate performance in meeting the objectives stated herein for a period of five years beyond construction completion.

  ENVIRON reserves the right to perform quality assurance testing to verify the performance standard of the containment barrier wall construction. Any discrepancies between the quality control sampling and the quality assurance sampling will be re-sampled at the contractor's expense. Any faulty workmanship will be repaired solely at the contractor's expense.

- The containment barrier wall shall be effective as determined by performance monitoring during dewatering.[3]
- Bidder shall submit a proposal to complete contingency measures if performance monitoring indicates that the containment barrier wall may not be effective or meet the objectives herein.

[2] Confining layer depth estimated from 25 to 30 feet. Contractor may obtain additional soil type, depth and thickness information using proper exploration and health and safety methods, if deemed necessary.
[3] Performance monitoring during dewatering is described in the Design Build Document.

8.0 SUBMITTALS

8.1 Bid Submittal

Bidder shall submit three (3) copies of the following information with the bid:

1. Completed Statement of Bidder's Qualifications and Experience.
2. A list of Bidder's Subcontractors (if any), their role and responsibility, their pertinent qualifications and experience, and their percentage involvement in relation to the total lump sum bid.
3. Narrative explaining that the proposed containment barrier wall method and materials shall be compatible with the contaminants located on-site.
4. Narrative explaining why the proposed containment barrier wall method is the best alternative for the site conditions.
5. Consideration as to whether the proposed containment barrier wall construction method will cost effectively meet the intent of the design.
6. Experience with the proposed containment barrier wall method on other NPL or similar sites.
7. Narrative and drawings, as necessary, illustrating the preliminary design of the containment barrier wall. The preliminary design shall include at a minimum:
   - Design approach.
   - Construction approach.
   - Preliminary specifications.
   - Working area needed during construction.
   - Any site-specific problems identified.
   - Detailed project schedule from design through construction completion including scheduling requirements within the Midco I Site.
   - Estimate of impacts to the Midco I Site and approach to minimize or eliminate potential impacts.
   - Resumes of key design and construction personnel including construction manager, construction foreman, quality assurance representative, and key equipment operations.

8. Lump sum price.
9. Schedule of values, to include design, construction, and warranty costs.
10. All Bond and Insurance information required by this Request for Bid.
11. In separate sections of the Bid, list assumptions made by the Bidder, a description of conditions that, if encountered, would inhibit the Bidder's work and necessitate a change order for Differing Site Conditions and exceptions to the Subcontract Agreement.

8.2 Final Design Submittal

The successful Bidder shall submit twenty (20) bound copies and one unbound copy of a Final Design Report, which ENVIRON will submit to the MRC, USEPA, and IDEM for review and approval (the contractor should assume that the report will require revision and re-submittal for approval) as part of a 100% design submittal. In addition, the Report shall be provided in electronic format acceptable to ENVIRON and the MRC. The Final Design Report shall consist of, at a minimum:

1. A cover letter under the seal of registered Indiana professional engineer, stating that the containment barrier wall design and Design Report were performed by or under his/her direction, and that the design will meet the objectives indicated.
2. Narrative, tables, calculations, and test results, as necessary, to fully explain the design basis for the containment barrier wall to achieve the stated objective.
3. Drawings including the final alignment and construction details. Drawings shall be presented on 22 inch by 34 inch plan sheets.
4. Narrative and drawings shall include as a minimum:
    - Design approach.
    - Construction approach.
    - Final specifications.
    - Construction quality control plan.
    - Sequencing of construction.
    - Means and methods for dealing with waste, debris, and/or fill materials along with alignment.

- Means and methods for daily clean-up and area restoration within Midco I Site.
- Special utility or access arrangements required.
- Means and methods for sealing subsurface utility penetrations.
- Detailed construction.
- Contractor health and safety plan.
- Resumes of the construction manager, construction foreman, construction quality assurance representative, and key equipment operator(s) (as appropriate) who are contemplated to be assigned once construction begins (once accepted, these key personnel can not be changed without a prior written request and a subsequent written approval from ENVIRON).

5. If a soil-bentonite containment wall is proposed, the results of the mix design and compatibility testing, as well as the source and physical properties of imported soils for backfill (if any) shall be included in addition to items furnished under 1 through 4.
6. If a deep soil mixing wall is proposed, the proposed soil additives and their compatibility with site contaminants shall be included in addition to items furnished under 1 through 4.
7. If a sheet pile wall is proposed, the proposed method for sealing the interlock joints and compatibility with site contaminants shall be included in addition to items furnished under 1 through 4.
8. If a geomembrane panel wall is proposed, the proposed method for sealing the interlock joints, the method of panel installation (e.g., slurry trench), and the compatibility with site contaminants shall be included in addition to items furnished under 1 through 4.
9. If a combination of methods is proposed, the applicable requirements for submittals under items 5 through 9 shall be included in addition to items furnished under 1 through 4.

8.3 Construction Documentation Submittal

As per the contract schedule in Section 3.0, the Bidder shall submit twenty (20) bound copies and one unbound copy of a Construction Documentation Report to ENVIRON by March 5, 2004. In addition, the Report shall be provided electronically (see prior specified software requirements). The Report shall consist of the following, as a minimum:

1. A cover letter under the seal of a registered Indiana professional engineer stating whether the barrier wall has been constructed in conformance with the approved Final Design Report, Specifications, and Construction Quality Assurance Plan. Any deviations from the Final Design Report shall be noted and explained.
2. A detailed narrative describing the construction in chronological order. Particular attention shall be given to any deviations from the approved Final Design Report, Specifications, and Construction Quality Assurance Plan.
3. Summary tables of record depths, elevations, and field and laboratory results, and appendices containing laboratory test reports and labeled 35-millimeter color photographs documenting the major aspects of construction.
4. A set of 22 inch by 34 inch as built plan sheets showing the record final alignment and details.

9.0 MEETINGS

The Bidder shall attend the following mandatory meetings; however, additional meetings may be identified during the construction period:

- Prebid Meeting at the Site.
- Design Kickoff Meeting.
- 50% Design Meeting.
- 100% Design Basis Meeting.
- Preconstruction Meeting.
- Site Safety Orientation.
- Weekly Site Progress Meetings at the time to be agreed upon at the Preconstruction meeting.
- Substantial Completion Walk Through Meeting.
- Construction Completion Meeting.

10.0 HEALTH AND SAFETY

1. Bidder shall be solely and completely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Bidder shall take all necessary precautions for the safety of, and provide the necessary protection to prevent injury or loss to all Bidder's employees and subcontractors.
2. Bidder shall comply with all applicable OSHA regulations. The Bidder's Health and Safety Plan does not supersede or in any way relieve the Contractor of obligations under any applicable OSHA regulations including 29 CFR 1910: Occupational Safety and Health Standards and 29 CFR 1926: Health and Safety Regulations for Construction.
3. At the Preconstruction Meeting, the Bidder shall submit two copies of documentation that the Bidder has the required training under OSHA 29 CFR 1910.120 for its own and its subcontractors' personnel, and that all site personnel are included in a medical surveillance program in accordance with 29 CFR 1910.120, and that personnel are medically examined and approved for wearing respiratory protection.

11.0 BID FORM

1. The undersigned Bidder proposes and agrees, if the bid is accepted, to enter into an agreement with ENVIRON to perform and furnish all Work specified or indicated in this Request for Bid for the Contract Price within the Contract Time indicated in the bid, and in accordance with the other terms and conditions of this Request for Bid.
2. This bid shall remain valid for ninety (90) days after the date of the bid due date. Bidder will sign and submit the Contract and other documents required by this Request for Bid within fifteen (15) days after the date of the Notice of Award.
3. Bidder has examined and received the following Addenda:

Date	Number
_____	_____
_____	_____

4. Bidder will complete the Work in accordance with this Request for Bid for the lump sum price stated below. A Schedule of Values is attached which will be used if currently unanticipated changes are made in the Bidder's scope of work during the barrier wall design and/or construction:

- Design Containment Barrier Wall $_____
- Construct Containment Barrier Wall $_____
- Total Lump Sum Price (Excluding Bonds) $_____
- Written Total Lump Sum Price (Excluding Bonds)

  _____
- Cost of Bonds $_____

Communications concerning this Bid shall be addressed to:

_____ Signed by (also list title):
Name

_____ _____

_____ _____

_____

_____
Address

Bid submitted on _____
Date

TABLES

TABLE 1

APPROXIMATE RANGE OF CONCENTRATIONS OF COMPOUNDS DETECTED IN SOILS, SEDIMENT, GROUND WATER AND SURFACE WATER DURING THE REMEDIAL INVESTIGATION

MIDCO I
GARY, INDIANA

Compounds	Soils[1] (mg/kg)	Sediments (mg/kg)	Ground Water (mg/l)	Surface Water (mg/l)
Aluminum	458-31100	3370-35100	0.027-41.3	0.08-6.19
Antimony	ND-103	1.70-18	ND-0.022	NA
Asenic	ND-49	1.6-69	ND-0.066	ND-0.031
Barium	ND-1090	50-651	ND-11.4	ND-0.36
Beryllium	ND-3.4	ND-7.5	NA	NA
Cadmium	ND-17	0.84-21	ND-0.022	ND-0.011
Calcium	230-103000	4470-82400	3.05-1270	13.5-239
Chromium	ND-10200	6.5-1600	ND-5.95	ND-0.14
Cobalt	ND-20	ND-20	ND-0.091	ND-0.023
Copper	ND-29200	17-1180	ND-1.28	ND-0.497
Iron	1280-69900	8350-45800	0.064-187	0.309-96.4
Lead	2.4-4980	28-1420	ND-0.295	0.0067-0.252
Magnesium	8.81-62400	1100-21500	0.182-385	3.17-74.3
Maganese	ND-537	76-1770	0.004-6.81	0.023-3.08
Mercury	ND-3	ND-2.6	ND-0.0015	ND-0.0011
Nickel	ND-6620	7.2-805	ND-34.1	ND-0.324
Potassium	ND-5400	391-3920	3.3-486	1-29.8
Selenium	ND-3.5	ND-3.4	ND-0.04	NA
Silver	ND-11	ND-5.3	ND-0.041	ND-0.02
Sodium	ND-20500	524-16800	14.4-27600	0.443-1590
Thallium	ND-1.2	ND-19	ND-0.05	ND-0.0076
Tin	ND-470	1.80-24	ND-1.31	ND-0.025
Vanadium	ND-81	9.9-56	ND-0.15	ND-0.05
Zinc	3.1-7860	82-933	ND-3.11	0.03-0.45
Acenaphthene	ND-26	ND-0.24	NA	NA
Acenaphthylene	NA	ND-0.5	NA	NA
Acetone	ND-480	ND-17	ND-30	ND-0.59

TABLE 1

APPROXIMATE RANGE OF CONCENTRATIONS OF COMPOUNDS DETECTED IN SOILS, SEDIMENT, GROUND WATER AND SURFACE WATER DURING THE REMEDIAL INVESTIGATION

MIDCO I
GARY, INDIANA

Compounds	Soils[1] (mg/kg)	Sediments (mg/kg)	Ground Water (mg/l)	Surface Water (mg/l)
Anthracene	ND-210	ND-1.1	ND-0.004	NA
Benzene	ND-14	ND-0.0042	ND-6.8	ND-0.012
Benzo(a)anthracene	ND-64	ND-1.8	NA	NA
Benzo(a)pyrene	ND-29	ND-1.8	NA	NA
Benzo(b&k)fluoranthene	ND-68	ND-3.4	NA	NA
Benzo(g,h,i)perylene	ND-18	ND-0.72	NA	NA
Benzoic acid	ND-68	ND-32	ND-130	NA
Benzyl alcohol	NA	NA	ND-0.1	NA
Bis(2-chloroethyl)ether	NA	NA	ND-0.023	NA
Bis(2-ethylhexyl)phthalate	ND-1300	ND-44	ND-0.029	ND-0.0022
2-Butanone (MEK)	ND-880	NA	ND-84	ND-0.1
Carbon disulfide	NA	NA	ND-0.0091	NA
Chlorobenzene	ND-640	NA	NA	NA
Chlordane	ND-14	ND-1.6	NA	NA
Chloroethane	NA	NA	ND-2	ND-0.036
Chloroform	ND-0.022	ND-0.00980	ND-2.7	NA
Chrysene	ND-64	ND-2	NA	NA
Cresol	ND-11	ND-1.6	ND-0.88	ND-0.014
4,4'-DDD	ND-0.0068	ND	NA	NA
Dibenzo(a,h)anthracene	ND-6.4	ND-0.21	NA	NA
Dibenzofuran	ND-22	ND-0.23	NA	NA
1,4-Dichlorobenzene	ND-0.29	NA	NA	NA
1,1-Dichloroethane	NA	ND-.047	ND-0.82	ND-0.075
1,2-Dichloroethane	NA	ND-0.0039	ND-0.1	ND-0.014
1,1-Dichloroethene	NA	ND-0.014	ND-0.1	NA
Trans-1,2-dichloroethene	ND-2.6	ND-0.011	ND-7.7	ND-0.087
2,4-Dichlorophenol	ND-0.057	NA	ND-0.0048	NA

TABLE 1

APPROXIMATE RANGE OF CONCENTRATIONS OF COMPOUNDS
DETECTED IN SOILS, SEDIMENT, GROUND WATER AND SURFACE WATER
DURING THE REMEDIAL INVESTIGATION

MIDCO I
GARY, INDIANA

Compounds	Soils[1] (mg/kg)	Sediments (mg/kg)	Ground Water (mg/l)	Surface Water (mg/l)
2,4-Dimethylphenol	ND-0.28	NA	ND-0.16	NA
Endrin	ND-4.4	NA	ND-0.0005	NA
Ethyl benzene	ND-3100	NA	ND-1.9	ND-0.0042
Fluoranthene	ND-160	ND-4	ND-0.003	NA
Fluorene	ND-23	ND-0.31	NA	NA
Indeno(1,2,3-cd)pyrene	ND-14	ND-0.49	NA	NA
Isophorone	ND-81	ND-2.6	ND-1.5	ND-0.025
2-Methylnaphthalene	ND-140	ND-1.2	NA	NA
Methylene chloride	ND-3600	ND-0.830	ND-320	ND-0.12
Naphthalene	ND-260	ND-0.90	ND-0.022	NA
Nitrobenzene	ND-0.045	NA	ND-0.0028	NA
N-Nitrosodiphenylamine	ND-0.26	ND-0.590	ND-0.003	ND-0.0026
PCBs	ND-44	ND-10.4	NA	NA
Pentachlorophenol	ND-26	ND-0.21	ND-0.079	NA
Phenanthrene	ND-160	ND-2.1	ND-0.0052	NA
Phenol	ND-5000	ND-3.7	ND-37	NA
Pyrene	ND-110	ND-3.1	NA	ND-0.0026
Styrene	ND-280	NA	NA	NA
1,1,2,2-Tetrachloroethane	ND-0.0086	NA	NA	NA
Tetrachloroethene	ND-350	NA	ND-0.37	NA
Toluene	ND-4100	0.14-0.043	ND-46	ND-0.44
1,1,1-Trichloroethane	ND-230	ND-0.0160	ND-7.6	ND-0.023
Trichloroethene	ND-840	NA	ND-0.91	ND-0.016
Vinyl chloride	NA	NA	ND-3	ND-0.015
Xylene	ND-3500	ND-0.15	ND-11	ND-0.17
2-Hexanone	ND-72	NA	ND-0.25	NA
4-Methyl-2-pentanone	ND-530	NA	ND-34	ND-0.069

TABLE 1

APPROXIMATE RANGE OF CONCENTRATIONS OF COMPOUNDS DETECTED IN SOILS, SEDIMENT, GROUND WATER AND SURFACE WATER DURING THE REMEDIAL INVESTIGATION

MIDCO I
GARY, INDIANA

Compounds	Soils[1] (mg/kg)	Sediments (mg/kg)	Ground Water (mg/l)	Surface Water (mg/l)
Diethyl phthalate	ND-1.2	ND-0.26	ND-0.0022	ND-0.007
Butyl benzyl phthalate	ND-430	ND-1.6	ND-0.0032	NA
Di-n-octyl phthalate	ND-73	ND-4.1	ND-0.003	NA
Cyanide	ND-2720	ND-176	ND-14	ND-0.325
4-Chloro-3-methylphenol	ND-0.4	ND-0.37	NA	NA
N-nitrosodipropylamine	ND-0.62	NA	NA	NA
Di-n-butyl phthalate	ND-190	ND-1.0	NA	ND-0.003
Dieldrin	ND-2.3	NA	ND-0.00032	NA
Aldrin	ND-0.51	NA	NA	NA
Gamma-BHC (Lindane)	NA	NA	ND-0.00025	NA
Aroclor-1242 & 1254	NA	ND-10.4	NA	NA
Aroclor-1248	NA	ND-0.64	NA	NA
4,4'-DDT	ND-0.0095	NA	NA	NA

Key:

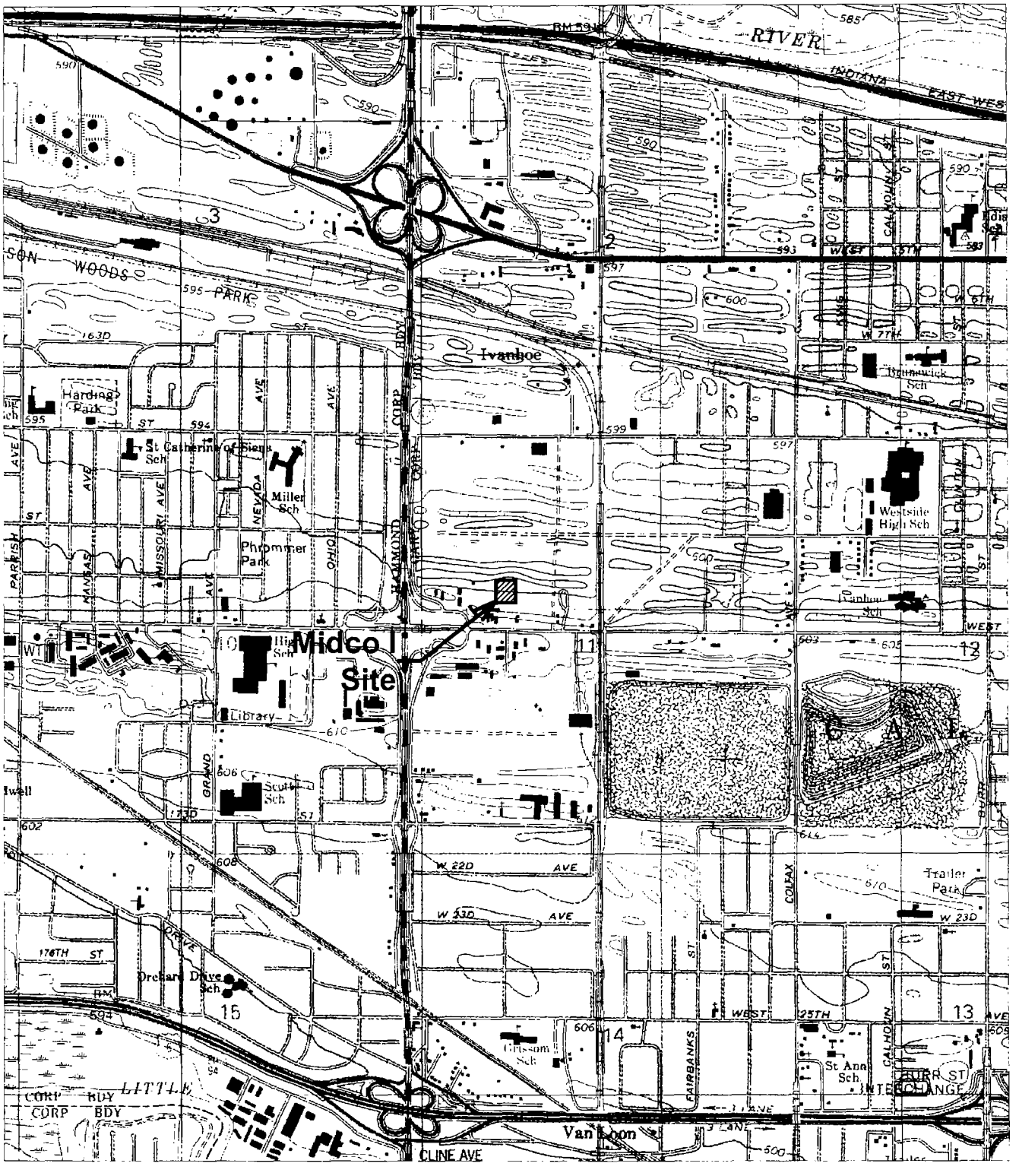
ND = Not detected.
NA = Not analyzed.
PCBs = Polychlorinated Biphenyls.

Note:

(1) Soils data include results from soil boring sample and trench sample analysis. Recent ground water data are not included.

APPENDIX A

Location Map and Site Layout



APPROXIMATE SCALE (ft.)

1"= 2000'

2000 0 1000 2000 4000

N

W E

S

SOURCE: U.S.G.S. 7.5 minute series (topographic)
Highland Quadrangle, IN 1991

ENVIRON

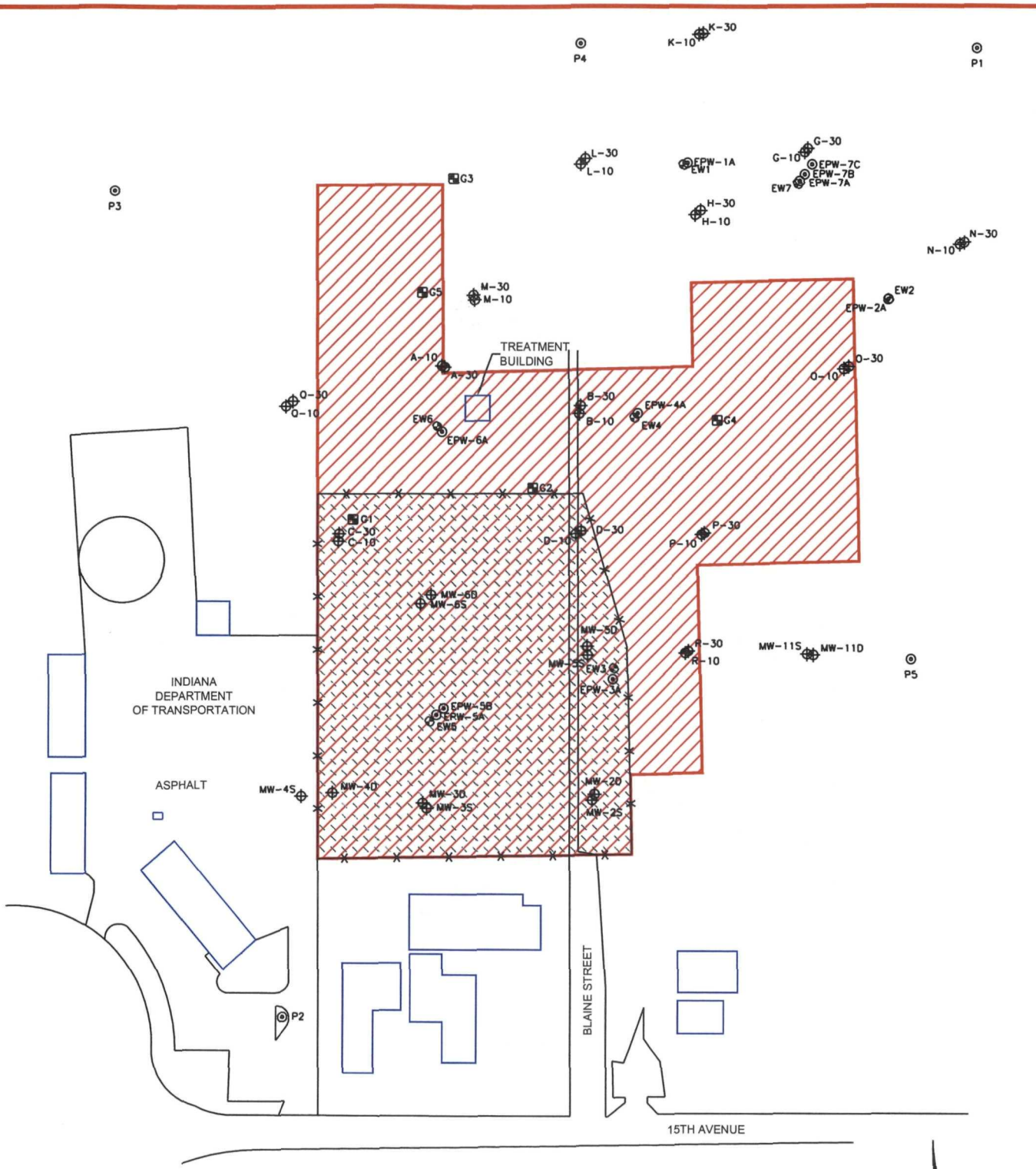
740 Waukegan Road, Suite 401, Deerfield, IL 60015

Midco I Site Location
Gary, Indiana

Figure
A-1

Drafter: APR Date: 7/29/03 Contract Number: 21-8601Z Approved: Revised:

R:\Client Project Files\Midco\Alternate Remedy-Design Bldg. Rpt 21-8601Z \DBD Response to June24 comments \slurry wall RFP\Figures\A-1 Midco I Site Location.dwg



R:\Client Project Files\Midco\Alternate Remedy-Design.Bldg. Rpt 21-8601Z \DBD Response to June24 comments \slurry wall RFP \Figures\A-2 Midco I Site Layout.dwg

ENVIRON

740 Waukegan Road, Suite 401, Deerfield, IL 60015

Midco I Site Layout
Gary, Indiana

Figure
A-2

Drafter:	APR	Date:	7/29/03	Contract Number:	21-8601Z	Approved:	Revised:

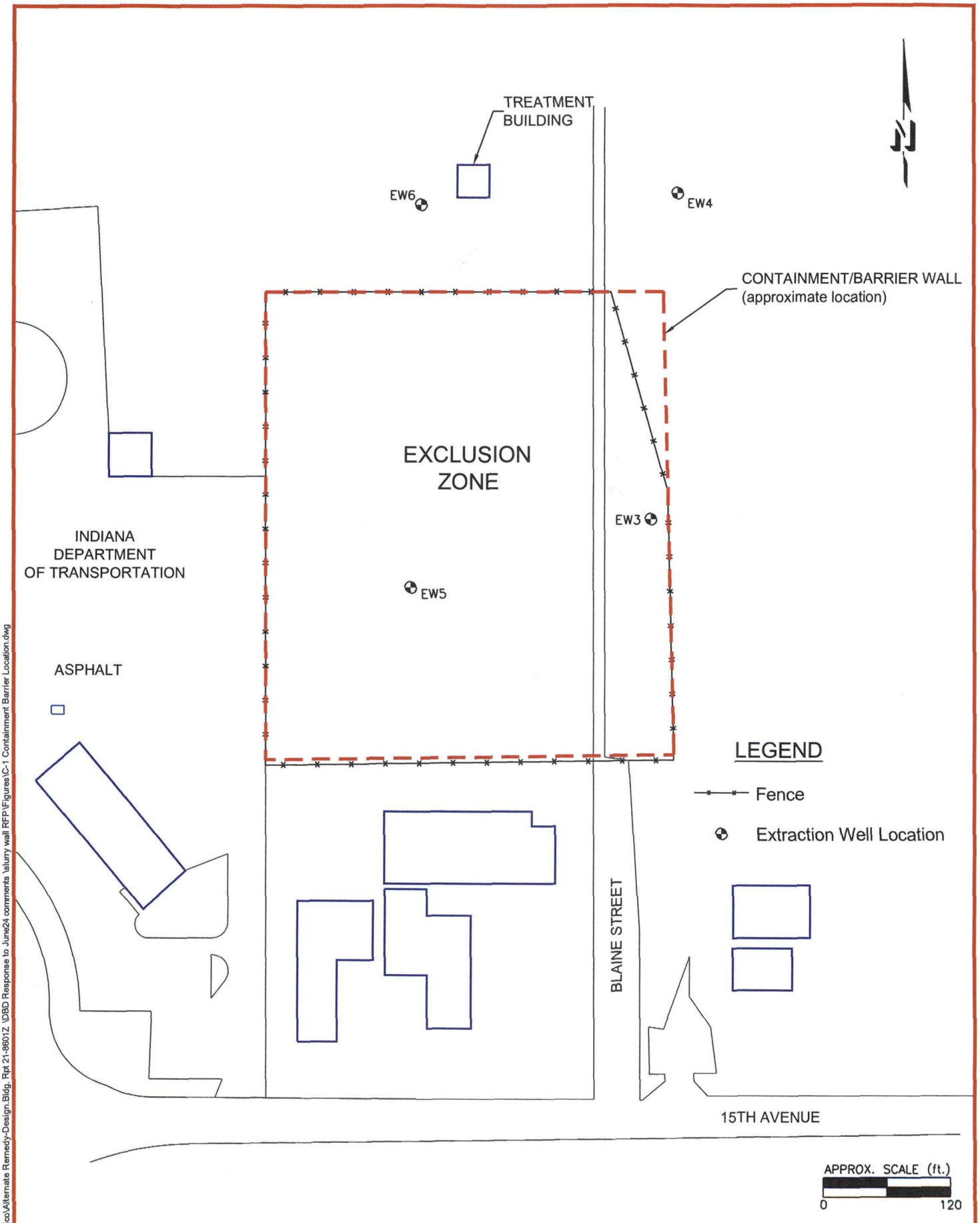
APPENDIX B

Subcontractor Agreement

Appendix B is not provided in this copy of the report.

APPENDIX C

General Location of Containment Barrier Wall and Subsurface Cross Section of Soils in the Area



R:\Client Project Files\Midco\Alternate Remedy-Design.Bldg. Rpt 21-8601Z \DBD Response to June24 comments \slurry wall RFP\Figures\C-1 Containment Barrier Location.dwg

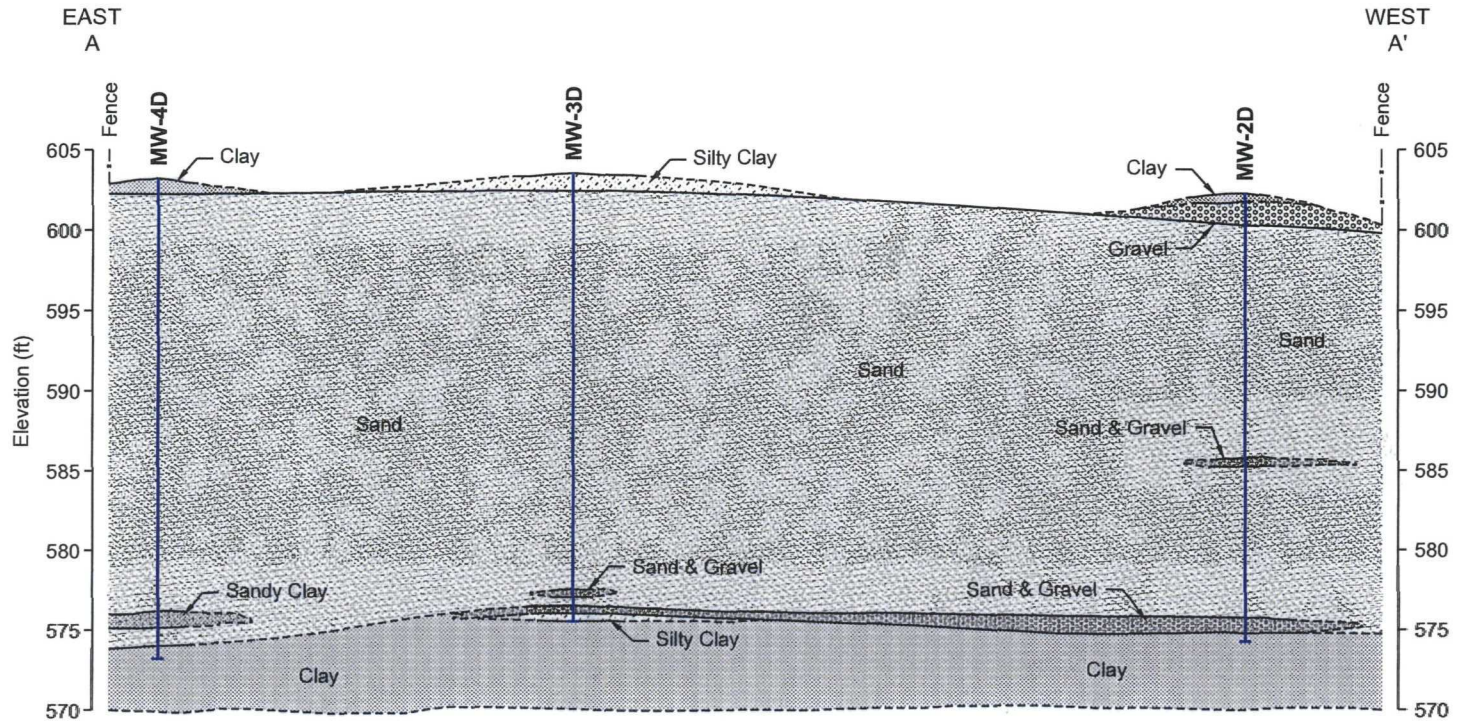
ENVIRON

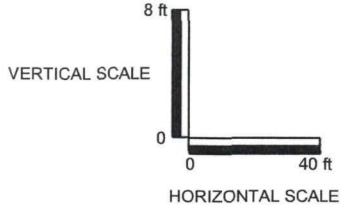
740 Waukegan Road, Suite 401, Deerfield, IL 60015

Containment Barrier Wall Location
Midco I Site
Gary, Indiana

Figure
C-1

Drafter: APR | Date: 7/29/03 | Contract Number: 21-8601Z | Approved: | Revised:





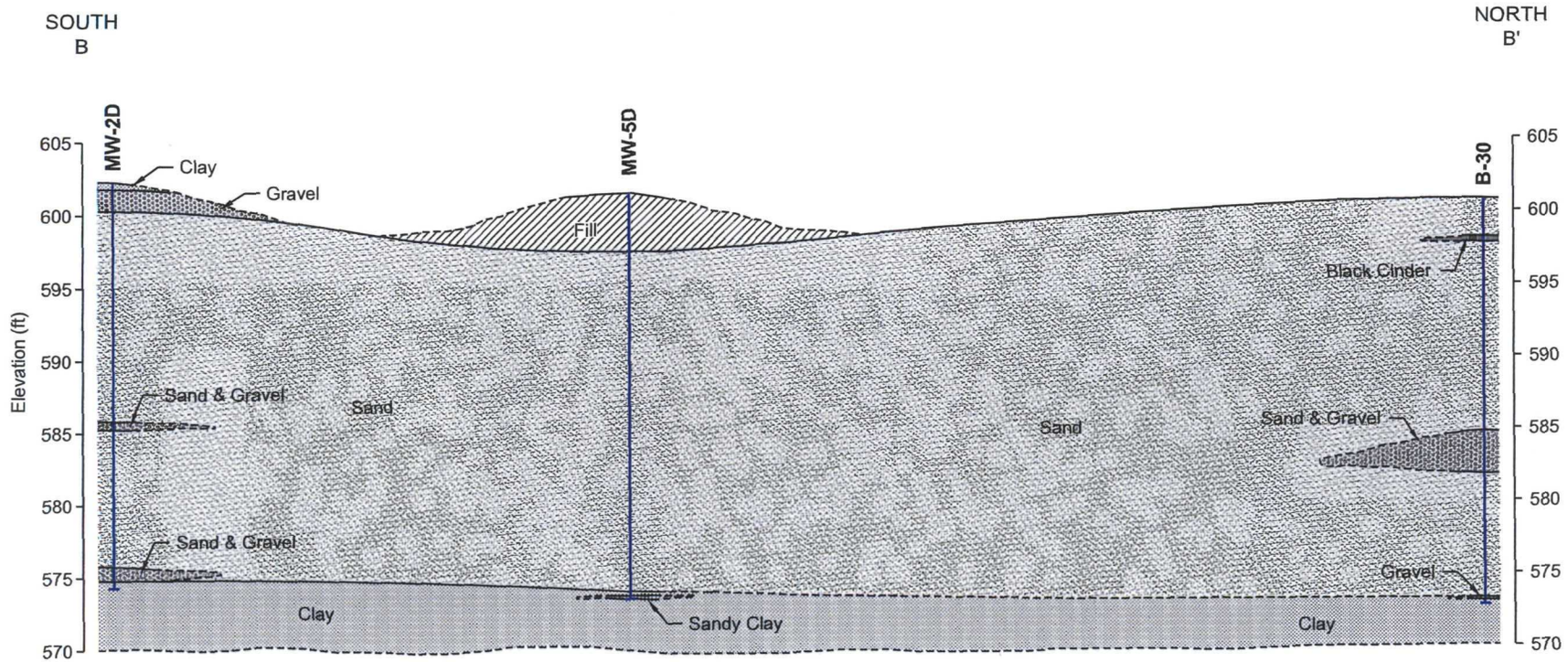
ENVIRON

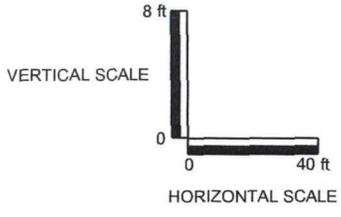
740 Waukegan Road, Suite 401, Deerfield, IL 60015

East West Geologic Cross Section
Midco I Site Soil Remediation Area
Gary, Indiana

DATE	CONTRACT NUMBER		FIGURE
7/29/03	21-8601Z		C-2
DRAFTER	APPROVED	REVISED	
APR			

R:\Client Project Files\Midco\Alternate Remedy-Design.Bldg Rpt 21-8601Z \DBD Response to June24 comments \slurry wall RFP \Figures\C-2 E-W Geologic X-Section.dwg





ENVIRON
740 Waukegan Road, Suite 401, Deerfield, IL 60015

North South Geologic Cross Section
Midco I Site Soil Remediation Area
Gary, Indiana

DATE	CONTRACT NUMBER		FIGURE
7/29/03	21-8601Z		C-3
DRAFTER: APR	APPROVED	REVISED	

R:\Client Project Files\Midco\Alternate Remedy-Design Bldg Rpt 21-8601Z IDBD Response to June24 comments \slurry wall RFP \Figures\C-3 N-S Geologic X-Section.dwg

APPENDIX D

CQA Guidelines

TABLE 3-4
MATRIX FOR EVALUATING BARRIER CQA/CQC AGAINST ACCEPTABLE INDUSTRY PRACTICES

Category	Less than Acceptable	Acceptable	Better than Acceptable
Specialty Contractor Experience	<4	4-6 Comparable Projects	>6
Trench Excavation Methods	No Inspection	Periodic Inspections	Constant Inspection
Trench Width, Verticality & Continuity *	No Inspection	Periodic Inspection	Measured
Trench Sounding (slope & bottom)	>20 ft	per 10-20 ft	<10 ft
Trench Bottom Cleaning	None	Yes *	>
Trench Key Confirmation	No Sampling	Sampling every 20ft	Sampling < 20 ft
Slurry Mixing	<	Agitation >12 hrs. Hydration	>
Slurry Viscosity Testing	<2	2 per shift	>2
Slurry Viscosity	<40	40+seconds (marsh funnel)	40-50 seconds (marsh funnel)
Slurry Sand Content Tests	<2	2 per shift	>2
Slurry Sand Content	>15%	<15 %	<<15%
Backfill Slump Testing	<	1 per 400-600 cy	>
Backfill Slump	<3" or >6"	Most tests 3"-6"	All tests 3"-6"
Backfill Gradation Testing	< 1	1 per 400-600 cy	> 1
Backfill Permeability Testing	< 1	1 per 400-600 cy	> 1
Backfill Target Permeability	>	5x10-7 - 1x10-7 cm/sec	<
Backfill Mixing/Placement	Loosely Controlled	Controlled Mix/Place	Central Mix/Guided Placement
Capping Confirmation	None	Cap confirmed	>
Barrier Continuity	Interrupted	Continuous	Continuous & Confirmed
Post Construc. Barrier Sampling/Testing	None	Minimal	Regular & Documented
As-Built Records	None	Const. Completion Report	Report, Drawings, Test Results
Groundwater Head Monitoring	None	Monitored Fluctuation	Periodic & Across Barrier
Final barrier alignment survey	None	Surveyed	Surveyed & Monumented
Barrier construction specification	None	Barrier	Barrier & CQA Plan
CQA/CQC program & testing spec.	None	Designer Specified	Independent Duplicate QA
Groundwater Chemistry Monitoring	None	Minimal	Periodic & Across Barrier

* Observation of trench width and equipment verticality.

Note: The categories, slurry sand content and backfill slump, are site-specific, and the numbers given above are typical for soil-bentonite slurry walls.

Reference: USEPA, *Evaluation of Subsurface Engineered Barriers at Waste Sites*. EPA 542-R-98-005, August 1998.